

Appln. No.: 10/788,910
Amendment Dated March 29, 2006
Reply to Office Action of December 29, 2005

SSM-525US

Amendments to the Drawings:

Please substitute the attached sheets of Replacement Drawings for any previously filed sheets.

Attachment

Remarks/Arguments:

The applicant appreciates the Examiner's helpful comments with respect to the drawings and the formalities with respect to the claim dependencies. The applicant also appreciates the Examiner's clarification of certain language used in the claims. The applicants have amended the drawings and the claims accordingly. The objection to the drawings, the objections to the claims, and the rejections of the claims under 35 U.S.C. § 112 have been overcome.

Claims 4, 5, 7, 10-12, 14, 15, 19-21, 24, and 25 are amended. Claim 27 is new and recites the conjunction "and" previously recited in claim 19. No new matter has been added.

Claims 1, 17-19, and 27 are the independent claims.

I. Lack of Anticipation

Claims 18-22 and 26 stand rejected under 35 U.S.C. § 102(b) as anticipated by Ströcker (U.S. Patent No. 4,721,425). Specifically, the rejection asserts that Ströcker shows the claimed "carrying-off means comprising spiked shafts and/or at least one rake conveyor" with reference numeral 15. The applicant respectfully traverses this rejection for the reasons set forth below.

Figure 1 of Ströcker shows a silo for granular bulk storage materials. To remove the granular items from the silo, the passage at col. 5, line 60 through col. 6, line 13 describes a rotary joint 13 and rotary member 17 to which is affixed scraper boom 15. Scraper boom 15 comprises two scraper booms, each with an endless scraper chain band which is fitted with scrapers and which is indicated in Figure 1 at 20 merely by dot-and-dash lines. There is no disclosure regarding what is a scraper chain band and what are the scrapers. Moreover, the Office Action acknowledges at page 6, paragraph 1.1 that Ströcker fails to teach spiked shafts mating with each other.

In contradistinction, claim 18 requires a "a rake conveyor" and claim 19 requires a "carrying-off means comprising spiked shafts or at least one rake conveyor." The applicant fails to find a disclosure or suggestion in Ströcker that the scrapers (which are only shown by dotted lines in Figure 1 of Ströcker) are a rake conveyor, or a spiked shaft, or are both a spiked shaft and a rake conveyor as required by independent claims 18 and 19. For at least this reason, Ströcker fails to anticipate claims 18-22 and 26. Reconsideration of the rejection of these claims is respectfully requested.

II. Nonobviousness

Claims 1-14, 16, and 23-25 stand rejected under 35 U.S.C. 103(a) as obvious over Ströcker in view of Stefanik (U.S. Patent No. 5,176,295). The rejection states that Ströcker discloses all the features of the claims, except for spiked shafts mating with each other. Stefanik is cited as teaching spiked shafts mated with each other. The supplied motivation to use the spiked shafts of Stefanik in Ströcker would be because such a combination would promote the separation of packed bulk goods.

For context, the purpose of the spiked shafts in the present invention is to transport bulk goods on the upper surface of a column of bulk goods in a silo or similar storage device horizontally to a release opening, for example in the centre of said silo. As discussed in the specification of the present application, bulk goods of the present invention largely contain particles of bulk goods or are formed exclusively from particles of bulk goods which tend to interlock. Such bulk goods are problematic in particular with respect to withdrawing them from the storage container. Bulk goods which are problematic in this way include, for example, household waste and chips for OSB plates (oriented strand boards) and other planar bulk goods. The pressure in the lower region of the storage container increases sharply with increasingly fill level, such that the individual particles of bulk goods generate very large adhesion forces between each other and the bulk goods can therefore only be separated by a large force. The term "interlocked bulk goods" is used throughout this application to describe this phenomenon. To support the spikes, a support frame is provided which holds all the spiked shafts such that they can rotate about their rotational axes which run perpendicular to the centre axis of the silo. The frame is connected to a turning device which pivots the frame about the centre axis of the silo.

The applicant respectfully traverses the obviousness rejection on the grounds that 1) the supplied motivation is inconsistent with the teachings of Ströcker, and 2) a person of ordinary skill in the art will not arrive at the claimed invention by combining the teachings of Ströcker and Stefanik.

First, the supplied motivation to use the spiked shafts of Stefanik in Ströcker is because the spiked shafts promote the separation of packed bulk goods. At col. 5, lines 27-30, Ströcker discloses that its disclosed apparatus is designed for "granular bulk materials, such as, for example, gypsum and the like." The applicant fails to find a disclosure in Ströcker that

discloses the granular materials become "packed" and that this presents a problem. To the contrary, the applicant submits that this passage of Ströcker would lead one of ordinary skill in the art away from using rakes or spiked shafts because a rake or spike would not be able to efficiently convey granular material, like gypsum. In fact, the applicant submits that a rake or spiked shaft would simply penetrate into the granular material, pass through it, and fail to move it at all. Because the stored material in Ströcker is granular, that applicant submits that this is but one reason that Ströcker contemplates "scraper booms" and "scrapers" on a chain band. For at least this reason, the applicant submits that there is no motivation to combine the spiked shafts of Stefanik in the apparatus of Ströcker, which is designed for storage of granular materials.

Second, a person of ordinary skill in the art, aware of Ströcker and seeking to improve the capacity of a silo, who becomes aware of the teachings of Stefanik, will not be led in the direction of the invention.

For example, Stefanik describes a discharge apparatus for use in bins or hoppers. The apparatus comprises a plurality of rollers disposed in a lower portion just above a bottom discharge opening. The rollers comprise knobs, plates or similar extensions which extend outwards. Above the rollers, the bin or hopper is filled with material, especially non-free-flowing material such as wood chips. In Figure 7, a line of rollers with paddles is shown, in which the paddles intermesh or overlap. The rotation axes of all the rollers are in one line in Figure 7. The function of the rollers with plates in Stefanik is to sift and dislodge material from the bin, allowing the material to fall between and among the rollers and out of the bin or hopper, i.e. the "spiked shafts" of Stefanik loosen material lying above them and thus allow it to free-fall out of the bin or hopper. Another embodiment disclosed in Stefanik is that by using these "spiked shafts", the material released from the bin or hopper can be easily portioned by opening and closing the release with the aid of the position of the paddles or plates, or the release of material can be stopped entirely when the paddles or plates projecting from the rollers are in a certain position.

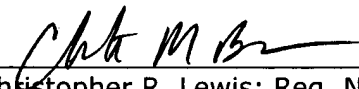
A person of ordinary skill in the art, aware of Ströcker and seeking to improve the capacity of a silo, who becomes aware of the teachings of Stefanik, will not be led in the direction of the present invention. It is doubtful if he/she would consider Stefanik at all relevant to solving his/her problem, because the discharge method of Stefanik does not help to increase the capacity of a silo. Furthermore, it is not obvious to combine the two teachings in a

way which would arrive at the solution of the invention. A person skilled in the art would have to go through several steps to arrive at the solution of the Application. In a first step, the person skilled in the art would have to recognize that the solution of Stefanik could be used for horizontal transport purposes. It is not obvious that the means for sifting and dislodging material to allow it to free-fall out of a bin or hopper can be used to transport material in a horizontal direction. Ströcker discloses a scraper chain belt which transports the bulk material towards the discharge opening. This provides the person of ordinary skill in the art with an efficient solution which allows the surface of the bulk column to be equalized and the bulk material to be transported towards the release opening. As the scraper chain belt turns, the spikes will catch parts of the bulk material and dislodge them, while the belt ensures their transport. This solution validates the solution of Stefanik, in which the spiked shafts serve primarily to dislodge the material. The next steps to consider would be how to arrange and mount the spiked shafts in the silo above the bulk material column, then how to power them, the best speed of rotation, the dimensions - i.e. the axial length - of the rollers and their diameter, the shape of the spikes (which might vary depending on the bulk material) and so on. Thus, simply combining Ströcker and Stefanik will not lead a person skilled in the art to the invention of the application. For this additional reason, the applicant respectfully requests reconsideration of the rejection.

III. Conclusion

The drawings and claims have been clarified in view of the Office Action objections. The claims have also been amended to further clarify that which the inventors regard as their invention. Furthermore, the applicant has pointed out the shortcomings of the prior art, namely, Ströcker, in that Ströcker fails to teach spikes or at least one rake conveyor. Furthermore, the applicant has also presented reasons why the claimed invention is not obvious in view of Ströcker and Stefanik. The applicant respectfully submits the pending claims are in a condition for allowance and requests early notification to that effect.

Respectfully submitted,



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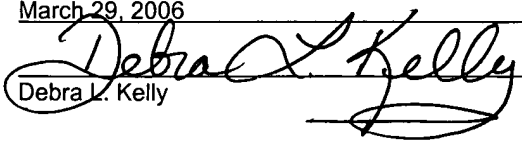
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